

Abstract

Thermoelectric Cooling of a Low-Noise Amplifier Transistors in Wireless Communications Networks

A base station for a wireless communications system having a tower-mounted amplifier system with a low-noise amplifier transistor and a thermoelectric cooler that reduces the operating temperature of the low-noise amplifier transistor. The amplifier system has additional heat-generating components, such as filters, and additional electrical components mounted on a substrate to which the low-noise amplifier transistor is mounted. These heat-generating components are thermally isolated from the cold side of the thermoelectric cooler. As a result, the cooling capacity and electrical power requirement for the thermoelectric cooler is significantly reduced because only the low-noise amplifier transistor is cooled.